

Pollution Abatement and Control Expenditures, 1972-80

REAL spending for pollution abatement and control (PAC) showed almost no change in 1980, compared with a 1-percent increase in 1979 and a 5-percent average annual rate of increase during 1972-79 (chart 5). According to the PAC fixed-weighted price index, prices for goods and services increased 13 percent in 1980, more than in any year since 1974.

This article discusses real PAC spending and prices in 1980 and evaluates the limited data available for 1981. It also presents revised estimates of PAC spending for 1972-79, and discusses trends in real spending since 1972.

PAC expenditures are for the reduction of pollutant emissions and the collection and disposal of solid wastes by means acceptable to Federal, State, and local authorities. PAC expenditures consist of those for pollution abatement (PA), which reduce pollutant emissions directly, plus expenditures for regulation and monitoring and for research and development, which lead indirectly to the reduction of emissions. Expenditures for other aspects of environmental control, such as expenditures for natural resource conservation or protection of endangered species, are excluded. Pollutants are defined as substances and other emissions (e.g., noise) that degrade the quality of air or water shared by all.

Real PAC spending in 1980.—In sharp contrast to the increase in each of the previous 9 years for which estimates are available, real spending for PAC showed almost no change in 1980. Air PAC spending increased 7 percent, to \$11.2 billion, and solid waste PAC spending increased 1 per-

cent, to \$4.5 billion. Water PAC spending fell to \$10.9 billion, a 7-percent decrease.

Most of the \$0.8 billion increase in air PAC spending was for purchases of motor vehicle emission abatement devices. This change in purchases of abatement devices is shown in table 1 as increases in personal consumption expenditures for durables and in business expenditures on capital account; it appears in table 2 under business capital account, and in table 6 under mobile sources. Although unit sales of motor vehicles decreased, relatively expensive improvements in abatement devices caused a near-record increase in spending for them. The improvements were in both catalytic and noncatalytic devices on 1980 model year cars and light-duty trucks. Even more expensive improvements, including the addition of computer-like electronic equipment that regulates engine operation, were made on many 1981 model year cars, which

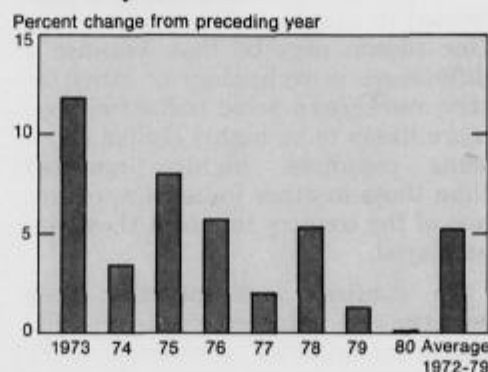
were sold in the fourth quarter of 1980.¹

The remaining increase in air PAC spending was for industrial plant and equipment and spending by business on current account. The only significant decrease in air PAC spending was in personal consumption expenditures for nondurables (operation of emission abatement devices on motor vehicles).

Most of the increase in solid waste PAC was in current-account expenditures (labor, materials, and services).² Small increases in spending for capital and for regulation and monitoring were more than offset by a decrease in State and local government spending for solid waste collection and disposal.

Of the \$0.8 billion decrease in water PAC spending, one-half was in construction of public sewer systems. This change in spending for sewer construction is shown as a decrease in government enterprise fixed capital in table 1, is shown separately in table 2, and is shown in table 7 as part of spending for public sewer systems and private connectors. This decrease occurred despite a 1979 increase in Federal funding (table 4). State and local long-term borrowing for public sewer systems decreased in

Percent Change in Real PAC Expenditures



U.S. Department of Commerce, Bureau of Economic Analysis

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1. Catalytic devices use noble metal (e.g., rhodium) catalysts to decrease carbon monoxide and hydrocarbon emissions; advanced devices also decrease nitrogen oxide emissions.

2. Solid waste PAC, i.e., the collection and disposal of solid waste by acceptable means, is contrasted in table 8 with related solid waste series. For further discussion, see Gary L. Rutledge and Susan L. Trevathan, "Pollution Abatement and Control Expenditures, 1972-79," *SURVEY OF CURRENT BUSINESS* 61 (March 1981): 27.

1978 and decreased sharply in 1979, the result of persistently high interest rates.

More than one-half of the remaining decrease in water PAC spending

was to install private septic systems and connectors to public sewers (residential systems), shown in table 2. This change in residential system spending reflects the decrease in resi-

dential construction activity in 1980. The remainder of the decrease was in industrial plant and equipment spending for PA and spending on current account to operate PA plant and

Table 1.—Expenditures for Pollution Abatement and Control in Current and Constant Dollars and Selected Implicit Price Deflators¹

	Line	1972 ²					1973 ²					1974 ²				
		Total	Air	Water	Solid waste	Other and unallocated ³	Total	Air	Water	Solid waste	Other and unallocated ³	Total	Air	Water	Solid waste	Other and unallocated ³
Millions of current dollars																
Pollution abatement and control.....	1	18,434	6,492	8,327	3,483	-236	21,598	8,321	20,989	3,745	-226	26,251	10,448	11,431	4,373	-193
Pollution abatement ⁴	2	17,245	5,805	8,440	3,421	-424	20,537	7,572	20,537	3,097	-463	24,678	9,665	11,235	4,311	-533
Personal consumption.....	3	1,538	1,538				2,065	2,065				2,487	2,487			
Durable goods.....	4	476	476				579	579				680	690			
Nondurable goods and services.....	5	1,060	1,060				1,385	1,385				1,077	1,077			
Business.....	6	10,960	4,153	4,987	2,277	-488	13,057	5,378	13,057	2,419	-470	15,627	6,840	6,554	2,870	-537
On capital account.....	7	5,399	2,398	2,723	310		6,798	3,284	6,798	344		7,438	3,310	3,205	421	
On current account.....	8	5,561	1,757	2,265	1,967	-488	6,259	2,114	6,259	2,075	-470	8,091	3,020	3,149	2,450	-537
Private.....	9	4,838	1,704	1,107	1,967		5,458	1,993	5,458	2,074		6,084	2,973	1,572	2,450	
Government enterprise.....	10	1,151	33	1,128	(*)	(*)	1,342	29	1,342	(*)	(*)	1,035	56	1,077	(*)	2
Costs recovered.....	11	-488			-488		-470		-470	-470		-538				-538
Government.....	12	4,749	119	3,483	1,144	3	5,375	129	5,375	1,273	4	6,464	158	4,881	1,441	4
Federal.....	13	139	50	76	5	3	283	47	283	18	6	294	50	196	35	4
State and local.....	14	1,311	(*)	171	1,140	(*)	1,433	(*)	171	1,262	(*)	1,591	(*)	189	1,403	(*)
Government enterprise fixed capital.....	15	3,299	63	3,237			3,736	82	3,654			4,598	102	4,496		
Regulation and monitoring.....	16	367	143	144	14	66	459	185	459	19	117	595	133	247	27	135
Federal.....	17	290	48	79	9	54	278	60	278	14	116	348	52	135	22	135
State and local.....	18	167	95	65	5	12	212	115	212	4	2	246	131	112	5	(*)
Research and development.....	19	823	531	142	27	122	906	583	906	30	122	998	559	188	36	292
Private.....	20	519	411	64	12	32	563	451	563	10	35	606	482	67	13	46
Federal.....	21	206	104	34	6	82	289	125	289	11	60	342	100	78	17	146
State and local.....	22	99	17	44	10	28	65	6	65	9	18	39	7	18	6	9
Millions of constant (1972) dollars																
Pollution abatement and control.....	23	10,434	4,492	6,327	3,483	-236	20,543	7,832	20,543	3,469	-177	24,307	9,893	10,439	3,610	-86
Pollution abatement ⁴	24	17,245	5,805	8,440	3,421	-424	19,288	7,130	19,288	3,445	-481	23,061	9,428	9,815	3,587	-278
Personal consumption.....	25	1,538	1,538				1,005	1,005				2,118	2,118			
Durable goods.....	26	476	476				670	670				651	651			
Nondurable goods and services.....	27	1,060	1,060				1,255	1,255				1,455	1,455			
Business.....	28	10,960	4,153	4,987	2,277	-488	12,850	5,042	12,850	2,284	-407	15,372	6,186	5,182	2,807	-882
On capital account.....	29	5,399	2,398	2,723	310		6,435	3,134	6,435	330		7,280	3,154	2,833	353	
On current account.....	30	5,561	1,757	2,265	1,967	-488	6,415	1,918	6,415	1,925	-407	8,172	2,022	2,499	2,034	-382
Private.....	31	4,838	1,704	1,107	1,967		5,030	1,893	5,030	1,925		6,258	1,908	1,230	2,034	
Government enterprise.....	32	1,151	33	1,128	(*)	(*)	1,293	25	1,293	(*)	(*)	1,296	25	1,269	(*)	1
Costs recovered.....	33	-488			-488		-407		-407	-407		-333				-333
Government.....	34	4,749	119	3,483	1,144	3	5,092	123	5,092	1,190	4	6,463	127	4,189	1,208	3
Federal.....	35	139	50	76	5	3	100	45	100	16	6	245	44	165	32	3
State and local.....	36	1,311	(*)	171	1,140	(*)	1,390	(*)	155	1,175	(*)	1,395	(*)	137	1,168	(*)
Government enterprise fixed capital.....	37	3,299	63	3,237			3,482	78	3,404			3,913	82	3,831		
Regulation and monitoring.....	38	367	143	144	14	66	459	154	459	17	109	615	157	314	29	121
Federal.....	39	290	48	79	9	54	278	47	278	13	107	365	45	113	19	121
State and local.....	40	107	95	65	5	12	187	107	187	3	2	212	112	80	4	(*)
Research and development.....	41	823	531	142	27	122	849	588	849	28	116	940	507	130	36	173
Private.....	42	519	411	64	12	32	535	484	535	9	33	578	415	48	11	39
Federal.....	43	206	104	34	6	82	253	118	253	11	65	294	85	67	15	123
State and local.....	44	99	17	44	10	28	61	6	61	6	27	34	5	16	4	8
Selected implicit price deflators ⁵																
Pollution abatement and control.....	45	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Pollution abatement.....	46	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Personal consumption.....	47	100.0	100.0				105.1	105.1				122.7	122.7			
Business.....	48	100.0	100.0	100.0	100.0	100.0	105.7	105.7	100.1	107.3	115.4	125.5	125.5	125.5	125.5	140.8
On capital account.....	49	100.0	100.0	100.0	100.0	100.0	106.1	106.1	106.5	104.5	115.5	119.5	120.4	119.4	119.2	
On current account.....	50	100.0	100.0	100.0	100.0	100.0	107.4	107.4	107.4	107.4	115.5	131.1	140.5	126.0	126.5	140.6
Government.....	51	100.0	100.0	100.0	100.0	100.0	107.4	107.4	107.4	107.4	107.4	118.7	125.1	113.1	120.1	121.3
Regulation and monitoring.....	52	100.0	100.0	100.0	100.0	100.0	107.4	107.4	107.4	107.4	107.4	115.4	116.2	115.0	115.0	114.3
Research and development.....	53	100.0	100.0	100.0	100.0	100.0	106.4	106.4	106.4	106.4	106.4	117.5	118.2	110.9	117.1	116.7
Addendum: Business capital consumption allowance (millions of dollars) ⁶																
Value at replacement cost in current dollars.....	54	1,691					2,185					2,839				
Value at replacement cost in constant (1972) dollars.....	55	1,531					2,094					2,301				

- ¹ Revised.
² Preliminary.
³ Less than \$500,000.
⁴ Includes expenditures for air and water pollution abatement and control. Includes expenditures for solid waste collection and disposal by means acceptable to Federal, State, and local authorities. Excludes agricultural production of crops and livestock except feedlots.
⁵ "Other" includes expenditures for abatement and control of noise, radiation, and pesticide pollution; "unallocated" includes business expenditures not assigned to media.
⁶ Expenditures are attributed to the sector that performs the air or water pollution abatement or solid waste collection and disposal.
⁷ Current-dollar estimates divided by constant-dollar estimates.
⁸ To facilitate conversion of expenditures to a cost basis.

equipment. The only significant increases in water PAC spending were current-account spending by government enterprises and spending for regulation and monitoring; together these increased almost \$0.1 billion.

Prices in 1980.—Prices of PAC goods and services, according to both the chain and fixed-weighted price indexes, increased 18.5 percent in 1980,

compared with 12.8 percent in 1979 (table 3). The acceleration of price change in 1980 was general, i.e., across most goods and services purchased for PAC.

Both the chain and fixed-weighted indexes are measures of pure price change in that they do not allow the composition of purchases to change and possibly obscure the effect of

price movement. The chain index is based on the composition of PAC purchases in the immediately preceding year and the fixed-weighted index is based on their composition in 1972.

Prices of air PAC goods and services increased substantially more than those for other types of PAC in 1980, reflecting a relatively high concentration of energy purchases in air

Table 1.—Expenditures for Pollution Abatement and Control in Current

	Line	1976 *					1976 *					1977 *				
		Total	Air	Water	Solid waste	Other and unallocated *	Total	Air	Water	Solid waste	Other and unallocated *	Total	Air	Water	Solid waste	Other and unallocated *
Millions of																
Pollution abatement and control	1	30,823	13,349	13,041	4,741	-219	34,681	14,182	15,513	5,288	-388	37,062	15,581	16,838	5,825	-285
Pollution abatement *	2	29,187	12,053	11,117	4,686	-869	32,877	13,579	15,006	5,220	-829	35,552	14,636	16,208	5,750	-903
Personal consumption	3	3,463	1,403				3,394	1,391				4,311	1,391			
Durable goods	4	1,361	1,361				1,321	1,321				2,166	2,166			
Nondurable goods and services	5	2,102	2,102				2,173	2,173				2,145	2,145			
Business	6	18,134	8,405	7,949	9,075	-692	20,335	9,829	8,655	3,339	-387	22,191	9,990	9,892	3,933	-985
On capital account	7	3,882	4,790	3,627	415		9,469	4,774	4,229	466		10,191	4,966	4,625	620	
On current account	8	9,892	2,613	3,722	2,660	-592	10,866	4,955	4,424	3,074	-387	12,998	4,975	5,237	3,413	-965
Private	9	8,100	3,668	1,872	2,658		9,543	4,197	2,262	3,074		11,922	4,915	2,894	3,413	
Government enterprise	10	1,896	40	1,850	(*)		2,281	58	2,182	(*)		2,683	80	2,543	(*)	
Costs recovered	11	-893				-699	-887				-887	-946				-968
Government	12	7,570	188	5,768	1,591	23	8,348	256	6,353	1,481	59	9,598	295	6,406	1,817	62
Federal	13	432	88	271	80	23	472	105	257	62	59	490	106	279	48	62
State and local	14	1,782	1	216	1,541	(*)	1,834	1	1,833	(*)	1,833	1	188	1,774	(*)	
Government enterprise fixed capital	15	5,397	100	5,297			6,042	150	5,892			6,129	188	5,939		
Regulation and monitoring	16	358	304	279	26	130	725	288	528	28	167	533	241	378	29	132
Federal	17	581	66	163	36	130	408	68	151	21	162	429	80	146	38	171
State and local	18	272	138	116	6	(*)	323	135	177	7	5	484	161	224	14	5
Research and development	19	1,163	881	165	48	516	1,279	890	189	29	381	1,476	963	200	39	436
Private	20	508	464	60	22	62	706	643	18	20	65	849	653	92	21	83
Federal	21	448	106	77	15	248	638	131	94	14	239	878	144	98	14	330
State and local	22	47	8	19	6	14	45	6	18	4	17	61	7	15	4	23
Millions of constant																
Pollution abatement and control	23	23,004	9,119	10,399	3,672	-33	24,335	9,545	10,996	3,902	-148	24,999	9,965	11,431	4,065	-101
Pollution abatement *	24	21,644	8,514	9,262	3,618	-435	22,868	8,912	10,519	3,854	-511	23,230	9,104	10,541	4,012	-527
Personal consumption	25	2,589	2,589				2,587	2,587				2,945	2,945			
Durable goods	26	1,184	1,184				1,169	1,169				1,683	1,683			
Nondurable goods and services	27	1,405	1,405				1,418	1,418				1,262	1,262			
Business	28	13,052	6,293	6,346	2,378	-454	13,789	6,284	6,560	2,610	-555	14,315	6,377	6,166	2,740	-588
On capital account	29	6,662	3,295	3,159	368		8,788	3,485	3,008	329		8,790	3,357	3,063	340	
On current account	30	6,395	2,977	2,582	2,070	-454	7,027	2,468	2,842	2,281	-555	7,555	2,621	3,103	2,400	-558
Private	31	5,650	2,177	1,273	2,070		6,199	2,438	1,424	2,281		6,650	2,695	1,956	2,400	
Government enterprise	32	1,380	20	1,360	(*)	(*)	1,484	26	1,418	(*)		1,574	26	1,548	(*)	
Costs recovered	33	-455				-455	-535				-535	-599				-599
Government	34	5,985	133	4,512	1,285	18	6,221	171	4,763	1,245	44	5,970	181	4,476	1,271	43
Federal	35	332	61	214	59	19	399	68	189	38	44	399	61	191	30	41
State and local	36	1,344	(*)	147	1,197	(*)	1,348	1	142	1,206	(*)	1,359	1	117	1,242	(*)
Government enterprise fixed capital	37	4,322	71	4,251			4,934	168	4,432			4,288	120	4,169		
Regulation and monitoring	38	517	162	221	26	109	538	149	242	21	126	577	166	255	27	129
Federal	39	306	59	122	21	108	383	62	114	16	122	304	57	109	18	128
State and local	40	213	106	99	6	(*)	234	88	128	5	3	274	109	152	9	3
Research and development	41	647	449	127	38	214	928	485	138	28	277	993	585	136	26	397
Private	42	461	388	52	17	40	581	385	55	14	46	582	433	81	14	56
Federal	43	348	84	80	11	122	586	90	61	10	218	394	98	10	225	
State and local	44	38	8	15	5	11	35	6	14	3	13	37	5	13	3	17
Selected implicit																
Pollution abatement and control	45	134.4	148.8	131.7	129.1	141.3	142.8	148.4	141.1	135.5	149.1	153.1	158.9	152.6	143.4	169.0
Pollution abatement *	46	134.8	141.6	131.5	129.1	141.3	142.9	149.9	141.4	135.5	149.0	153.5	159.7	152.9	143.8	168.0
Personal consumption	47	139.3	138.8				139.8	139.8				145.4	146.4			
Business	48	138.9	145.1	127.5	129.3	142.4	147.5	163.5	147.9	135.6	149.9	159.0	166.1	160.0	143.5	169.9
On capital account	49	132.6	138.2	121.5	124.9		140.0	139.4	140.0	141.6		147.4	147.6	151.0	152.9	
On current account	50	145.6	164.4	144.3	138.5	143.4	164.6	178.0	147.7	141.7	149.9	167.5	169.8	148.3	148.3	169.0
Government	51	128.2	141.4	125.1	128.9	124.0	134.2	149.8	133.4	135.2	134.0	145.7	162.7	143.1	142.9	149.0
Regulation and monitoring	52	128.2	127.1	128.6	125.7	125.0	134.3	135.9	135.3	134.1	132.5	144.2	145.3	145.1	149.1	141.3
Research and development	53	130.3	131.2	129.5	129.8	129.1	128.0	140.1	138.2	138.5	137.4	148.9	150.1	148.1	148.1	147.1
Addendum: Business capital consumption																
Valued at replacement cost in current dollars	54	3,578					4,282					6,061				
Valued at replacement cost in constant (1972) dollars	55	2,719					2,888					3,413				

See footnotes on page 51.

PAC. The largest increase was in air PAC prices of nondurables, which include gasoline. Prices of all other energy goods and services continued to increase at high rates in 1980; prices of PAC goods other than energy accelerated moderately.

The implicit price deflator for PAC increased 18.1 percent in 1980, com-

pared with 12.9 percent in 1979. It measures the average price of PAC purchases in each year and changes in it reflect not only changes in prices but also shifts in the composition of purchases from year to year.

Real PAC spending in 1981.—The limited information available as of January indicates that the level of

real spending, and also the pattern of component changes, in 1981 were about the same as in 1980. A large increase in air PAC spending in 1981 once again offset a large decrease in water PAC. The increase was mainly for the purchase of the expensive improvements in motor vehicle emission abatement devices on model year 1981

and Constant Dollars and Selected Implicit Price Deflators¹—Continued

1978 ²					1979 ²					1980 ²					Line
Total	Air	Water	Solid waste	Other and unallocated ³	Total	Air	Water	Solid waste	Other and unallocated ³	Total	Air	Water	Solid waste	Other and unallocated ³	
current dollars															
43,915	17,132	10,671	6,606	-294	46,888	20,517	21,410	1,438	-296	65,881	25,435	22,324	8,531	-769	1
40,433	15,922	10,047	6,516	-1,055	46,390	19,317	20,744	1,539	-1,294	62,692	24,088	21,549	8,517	-1,582	2
4,849	4,549				5,475	5,475				7,820	7,020				3
2,412	2,412				2,741	2,741				3,643	3,643				4
2,237	2,237				2,734	2,734				3,378	3,378				5
25,409	10,999	11,011	4,479	-1,975	29,671	13,774	12,207	5,289	-1,349	34,099	18,590	18,038	6,031	-1,510	6
10,809	5,261	4,966	682		12,089	6,025	5,260	724		13,855	7,105	6,149	833		7
14,599	5,732	6,045	3,897	-1,975	17,581	7,348	6,977	4,568	-1,359	20,835	9,457	7,830	5,195	-1,510	8
12,926	5,668	3,068	3,897		15,383	7,242	3,456	4,568		18,465	9,309	3,958	5,197		9
3,048	72	2,976	(*)	(*)	3,628	106	3,421	(*)	1	4,080	145	3,932	(*)	(*)	10
-1,076				-1,076	-1,360				-1,360	-1,610				-1,610	11
10,875	283	8,036	2,836	20	11,344	368	8,677	2,243	25	11,552	478	8,538	2,485	58	12
472	50	316	47	19	648	108	347	48	58	694	100	299	58	50	13
2,208	(*)	218	1,988	1	2,425	(*)	257	2,166	6	2,731	(*)	239	2,493	8	14
7,695	198	7,502			8,338	265	8,073			8,318	378	7,940			15
949	378	405	55	233	1,047	300	425	85	257	1,297	340	639	111	918	16
507	93	186	28	201	693	108	233	37	226	796	125	230	51	280	17
442	188	219	25	12	474	200	105	48	32	511	215	198	60	38	18
1,638	331	219	35	449	1,781	1,081	341	39	461	1,772	1,037	227	43	465	19
985	777	89	16	93	1,099	588	185	11	90	1,124	900	110	16	99	20
592	146	104	16	326	664	105	118	24	317	570	130	20	25	325	21
57	8	17	4	29	69	8	19	4	20	79	7	27	4	41	22
(1972) dollars															
26,188	10,855	11,851	4,343	-158	28,138	10,486	11,718	4,493	-198	25,883	11,385	10,945	4,838	-290	23
24,474	9,313	11,451	4,284	-574	24,785	9,548	11,315	4,426	-623	24,728	10,410	10,516	4,451	-649	24
2,990	2,990				2,990	2,990				3,304	3,304				25
1,740	1,740				1,833	1,833				2,255	2,255				26
1,260	1,260				1,158	1,158				1,049	1,049				27
14,867	6,160	6,858	2,941	-586	15,327	6,466	6,301	3,124	-628	15,409	6,877	6,091	3,176	-678	28
6,729	3,872	3,031	347		6,813	3,517	3,008	388		6,775	3,739	2,677	390		29
8,138	2,608	3,222	2,594	-586	8,514	2,948	3,483	2,735	-628	8,631	3,078	3,454	2,777	-678	30
7,822	2,780	1,848	2,594		7,383	2,916	1,732	2,735		7,481	3,088	1,688	2,777		31
1,783	28	1,875	(*)	(*)	1,783	32	1,751	(*)	(*)	1,828	39	1,788	(*)	(*)	32
-567				-567	-653				-653	-678				-678	33
6,617	153	5,096	1,344	12	6,446	182	4,924	1,203	20	6,019	229	4,485	1,216	29	34
285	48	196	39	11	297	48	194	28	27	249	44	149	50	25	35
1,417	(*)	102	1,314	1	1,392	(*)	116	1,276	3	1,365	(*)	116	1,245	4	36
4,318	115	4,795			4,758	144	4,615			4,405	185	4,220			37
820	178	263	38	142	682	181	259	52	160	736	191	300	62	183	38
348	62	125	19	184	372	63	146	23	141	455	72	191	34	102	39
280	116	139	17	8	289	118	114	28	19	291	118	109	33	21	40
1,814	674	187	22	282	1,021	578	143	24	275	1,004	584	129	25	256	41
604	476	81	10	87	628	508	69	6	65	680	506	61	8	56	42
873	92	66	16	206	849	65	73	15	180	828	75	52	14	187	43
38	5	11	3	19	49	5	12	2	24	46	4	16	2	24	44
price deflators ⁴															
164.8	170.2	166.9	155.1	131.2	188.4	197.2	184.4	170.1	188.7	210.3	217.4	204.0	191.1	211.8	45
185.2	171.0	169.3	152.1	182.9	187.8	189.2	185.1	170.2	207.9	212.7	213.1	205.1	191.4	235.7	46
155.5	155.5				182.1	183.1				215.5	212.5				47
170.9	178.5	173.3	182.3	183.9	192.9	206.9	191.9	168.3	208.3	228.8	240.8	218.2	189.9	237.4	48
188.6	157.0	168.9	167.9		178.7	171.3	181.9	180.3		198.1	187.0	199.8	206.8		49
173.4	204.1	181.9	180.2	183.3	206.9	249.2	200.3	166.9	208.3	242.6	307.2	229.4	187.2	287.4	50
196.8	173.4	187.5	151.5	183.7	175.9	191.4	175.2	172.3	188.9	191.9	209.5	190.2	156.0	197.6	51
153.9	144.8	154.0	163.5	149.7	153.6	185.6	163.7	166.1	160.9	178.2	178.3	178.3	177.9	173.6	52
161.0	162.8	159.0	158.3	159.9	189.6	173.2	168.8	164.8	163.9	176.5	177.7	175.5	174.5	174.7	53
allowance (billions of dollars) ⁵															
5,939					7,066					8,332					54
3,746					4,967					4,359					55

Table 2.—Business and Government Expenditures for Air and Water Pollution Abatement in Current and Constant Dollars and Selected Implicit Price Deflators

	Air										Water									
	1972 ^a	1973 ^a	1974 ^a	1975 ^a	1976 ^a	1977 ^a	1978 ^a	1979 ^a	1980 ^a	1972 ^a	1973 ^a	1974 ^a	1975 ^a	1976 ^a	1977 ^a	1978 ^a	1979 ^a	1980 ^a		
Millions of current dollars																				
Business (line 8) ¹	4,153	5,378	5,830	5,403	9,829	9,336	10,393	13,374	15,549	4,957	5,779	6,384	7,319	8,663	9,882	16,011	12,267	13,829		
On capital account (line 7)	2,366	3,254	3,810	4,790	4,774	4,956	5,261	6,826	7,103	2,723	3,168	3,905	3,627	4,229	4,925	4,968	5,290	5,149		
Motor vehicle emission abatement	225	339	444	770	883	1,159	1,362	1,327	2,032											
Plant and equipment expenditures ²	2,141	2,925	3,366	4,019	3,911	3,796	3,910	4,498	5,071	1,489	1,688	1,831	2,550	2,973	3,042	3,106	3,207	3,283		
Residential systems ³										1,380	1,488	1,268	1,063	1,250	1,576	1,858	2,060	1,883		
Agricultural business ⁴										3	3	7	8	8	8	8	8	3		
On current account (line 9)	1,787	2,114	2,020	3,613	4,255	4,379	5,732	7,348	8,447	2,235	2,612	3,149	3,732	4,424	5,637	6,045	6,977	7,880		
Private (line 10)	1,764	2,085	2,573	3,558	4,197	4,915	5,600	7,943	9,309	1,107	1,299	1,572	1,872	2,282	2,694	3,063	3,556	3,058		
Motor vehicle emission abatement	436	610	1,060	1,204	1,192	1,459	1,912	2,840	3,504											
Manufacturing establishments	772	812	960	1,200	1,306	1,504	2,028	2,337	2,688	581	836	846	1,021	1,246	1,505	1,716	1,977	2,183		
Privately owned electric utility establishments	279	361	393	633	633	779	944	1,383	1,780	32	35	54	65	85	92	100	114	130		
Other nonmanufacturing establishments	278	303	360	441	504	673	787	883	1,027	269	355	441	508	600	690	800	933	1,105		
Residential systems ³										195	211	229	247	268	292	322	354	389		
Agricultural business ⁴										(*)	1	1	2	2	3	4	6	5		
Government enterprise (line 10)	23	29	56	45	58	60	72	105	148	1,125	1,318	1,577	1,856	2,162	2,543	2,976	3,421	3,532		
Publicly owned electric utilities	23	29	56	45	58	60	72	105	148	1,125	1,318	1,577	1,856	2,162	2,543	2,976	3,421	3,532		
Public sewer systems ⁵										1,124	1,308	1,671	1,842	2,153	2,533	2,965	3,409	3,510		
Other										(*)	1	1	(*)	1	(*)	(*)	1	(*)		
Government (line 12)	119	129	156	188	256	285	283	368	478	2,453	2,561	4,881	5,798	6,363	6,406	8,035	8,677	8,530		
Federal (line 13)	50	47	66	88	105	100	90	103	100	75	133	196	271	257	279	310	347	299		
Federal excl. highway erosion abatement	56	47	66	88	105	100	90	103	100	75	133	192	260	252	279	310	348	290		
Highway erosion abatement												4	5	6	6	7	8	9		
State and local (line 14)	(*)	(*)	(*)	1	1	1	(*)	(*)	(*)	171	171	189	210	294	188	218	257	299		
State and local excl. highway erosion abatement	(*)	(*)	(*)	1	1	1	(*)	(*)	(*)											
Highway erosion abatement										171	171	189	210	294	188	218	257	299		
Government enterprise fixed capital (line 16)	63	82	102	100	188	188	193	285	378	3,237	3,637	4,406	5,237	5,892	5,893	7,502	8,073	7,948		
Publicly owned electric utilities	63	82	102	100	188	188	193	285	378	28	54	75	64	73	80	130	102	91		
Public sewer systems ⁵										3,208	3,603	4,421	5,228	5,818	5,853	7,366	7,971	7,849		
Millions of constant (1972) dollars																				
Business (line 20) ¹	4,153	5,042	5,108	5,793	5,884	5,977	6,168	6,485	6,877	4,957	5,441	5,352	5,730	5,558	5,165	8,253	6,391	6,831		
On capital account (line 20)	2,366	3,134	3,154	3,596	3,425	3,357	3,452	3,517	3,790	2,723	2,981	2,683	2,758	3,008	3,063	3,031	2,906	2,577		
Motor vehicle emission abatement	225	339	419	670	787	900	976	1,021	1,255											
Plant and equipment expenditures ²	2,141	2,785	2,745	2,926	2,638	2,457	2,476	2,495	2,541	1,489	1,655	1,596	1,945	2,138	2,050	1,928	1,809	1,711		
Residential systems ³										1,380	1,394	1,083	988	865	1,008	1,100	1,097	865		
Agricultural business ⁴										8	2	7	8	8	8	8	8	1		
On current account (line 20)	1,787	1,918	2,022	2,197	2,459	2,521	2,708	2,945	3,075	2,235	2,460	2,499	2,582	2,842	3,163	3,322	3,483	3,454		
Private (line 21)	1,764	1,883	1,996	2,177	2,433	2,536	2,700	2,945	3,075	1,107	1,221	1,230	1,278	1,424	1,566	1,548	1,782	1,656		
Motor vehicle emission abatement	435	655	789	868	975	1,110	1,173	1,110	1,173											
Manufacturing establishments	772	745	884	765	883	942	960	1,005	1,007	591	655	646	671	750	848	802	933	885		
Privately owned electric utility establishments	279	304	273	268	285	367	419	474	474	32	33	41	41	50	49	50	52	51		
Other nonmanufacturing establishments	278	278	266	277	323	349	366	377	380	269	343	358	361	400	456	484	519	497		
Residential systems ³										195	200	206	209	213	216	220	225	231		
Agricultural business ⁴										(*)	(*)	1	1	2	2	2	2	2		
Government enterprise (line 22)	23	25	26	20	25	25	28	32	39	1,125	1,239	1,269	1,369	1,415	1,548	1,675	1,751	1,788		
Publicly owned electric utilities	23	25	26	20	25	25	28	32	39	1,125	1,239	1,269	1,369	1,415	1,548	1,675	1,751	1,788		
Public sewer systems ⁵										1,124	1,284	1,264	1,364	1,413	1,542	1,665	1,745	1,782		
Other										(*)	(*)	1	(*)	(*)	(*)	(*)	(*)	(*)		
Government (line 24)	119	123	127	133	131	181	163	192	229	2,483	2,683	4,133	4,612	4,762	4,976	5,978	6,924	4,856		
Federal (line 25)	56	48	44	61	88	61	48	48	44	75	124	145	214	189	191	156	154	149		
Federal excl. highway erosion abatement	66	48	44	61	88	61	48	48	44	75	124	142	211	185	187	150	150	145		
Highway erosion abatement										5	4	3	4	4	4	3	3	3		
State and local (line 26)	(*)	(*)	(*)	(*)	1	1	(*)	(*)	(*)	171	165	137	147	142	117	102	116	116		
State and local excl. highway erosion abatement	(*)	(*)	(*)	(*)	1	1	(*)	(*)	(*)											
Highway erosion abatement										171	165	137	147	142	117	102	116	116		
Government enterprise fixed capital (line 27)	63	78	82	71	103	120	115	144	185	3,237	3,404	3,831	4,251	4,432	4,189	4,758	4,615	4,229		
Publicly owned electric utilities	63	78	82	71	103	120	115	144	185	29	51	69	46	49	61	82	86	45		
Public sewer systems ⁵										3,208	3,353	3,762	4,200	4,382	4,117	4,716	4,559	4,175		
Selected implicit price deflators ⁶																				
Plant and equipment expenditures (see above, business, capital account) ²	100.0	105.0	122.6	137.4	144.5	154.8	164.5	180.2	189.8	100.0	106.5	121.0	131.4	139.0	145.4	161.1	177.2	191.9		
Manufacturing, privately owned electric utilities, and other non-manufacturing establishments (see above, business current account)	100.0	111.1	157.3	172.7	180.5	200.9	218.9	255.7	255.9	100.0	106.5	131.1	152.9	164.5	179.5	192.4	212.5	245.8		
Public sewer systems (see above, business, current account) ⁵	100.0	106.0	134.3	141.2	152.4	164.2	184.2	217.5	217.5	100.0	107.4	127.2	134.2	132.8	142.3	156.2	174.8	183.0		
Public sewer systems (see above, government, fixed capital) ⁵	100.0	107.4	127.2	134.2	132.8	142.3	156.2	174.8	183.0	100.0	107.4	127.2	134.2	132.8	142.3	156.2	174.8	183.0		

^a Revised.^b Preliminary.^c Less than \$500,000.^d Line numbers correspond to those in table 1.^e Consists of manufacturing, private and cooperatively owned electric utilities, and other non-manufacturing companies.^f Consists of private septic systems and sewer connections linking household plumbing to street sewers.^g Feedlot operations only. See footnote 1 on table 1.^h Public sewer systems consist of treatment plants, collection sewers, interceptor sewers, pumping stations, and dry waste disposal plants.ⁱ Current-dollar estimates divided by constant-dollar estimates.

passenger cars and light-duty trucks, although business private purchases on current account also increased. The large decrease in water PAC resulted largely from the continued decline in construction of public sewer systems. Business spending on capital account for water decreased for the third consecutive year. Solid waste collection and disposal spending increased, but was largely offset by a decrease in "other and unallocated" spending.

Revisions in real spending, 1972-79.—The PAC spending series is revised annually to incorporate improvements in methods and, less frequently, in sources. This year's revisions are upward and average about 1

percent of total PAC spending (table 5). They are largely due to the substantial improvement in estimates of the net stocks of industrial plant and equipment for air and water PA. These estimates, to be published separately by BEA later this year, have been used to reestimate air and water PA spending on current account by "other nonmanufacturing" (table 2).³ The most significant of several other improvements is the incorporation of revised estimates of plant and equip-

ment expenditures for air and water PA.⁴

Real PAC spending during 1972-80.—Almost all components of real PAC spending exhibit a lower growth rate for 1975-80 than for 1972-75. Total PAC spending grew at an average annual rate of 8 percent during 1972-75 and at a rate of 3 percent during 1975-80. Consumer spending for durables grew at a 35-percent annual rate during 1972-75 and at a 14-percent rate during 1975-80. The

3. This PA spending is assumed to have the same relationship to the "other nonmanufacturing" net stock of plant and equipment for air and water PA as manufacturing air and water PA spending on current account has to the manufacturing stock of similar plant and equipment.

4. Preliminary revised figures for new plant and equipment expenditures for air and water PA were incorporated in the previous article on PAC expenditures in March 1981. Final estimates, first published in June 1981, are incorporated in the present article.

Table 3.—Percent Change From Preceding Year in Pollution Abatement and Control Expenditures (Total and Selected Components) in Current and Constant Dollars, Implicit Price Deflators, and Price Indexes

	1972-79 average annual rate ¹	1973*	1974*	1975*	1976*	1977*	1978*	1979*	1980*
Pollution abatement and control—total:									
Current dollars	15.0	10.0	10.8	17.8	12.2	9.5	13.3	14.4	13.2
1972 dollars	6.2	11.8	3.4	8.0	6.7	2.0	4.3	1.3	1.1
Implicit price deflator	0.2	0.4	15.0	9.8	6.1	7.4	7.0	12.9	13.1
Chain price index		6.8	16.0	9.8	6.2	7.3	7.7	12.8	13.5
Fixed-weighted price index	0.4	6.5	16.0	9.8	6.3	7.4	7.8	12.8	13.5
Pollution abatement and control—air:									
Current dollars	17.8	28.4	25.5	22.8	16.3	10.0	10.0	10.8	24.0
1972 dollars	6.0	20.8	3.3	12.7	4.7	2.7	2.7	3.4	7.5
Implicit price deflator	10.2	6.2	21.6	9.1	5.4	7.1	7.1	15.9	16.3
Chain price index		6.8	21.7	10.8	5.7	7.3	7.0	15.9	17.4
Fixed-weighted price index	10.8	6.5	22.6	10.9	5.7	7.7	7.0	16.1	17.8
Business capital—air:									
Current dollars	14.2	37.9	19.7	26.7	-3	3.8	6.2	14.5	17.9
1972 dollars	6.9	32.0	1.3	13.6	-4.7	-2.0	-2	4.0	8.0
Implicit price deflator	7.9	4.5	16.2	10.6	4.7	5.9	6.4	9.1	9.2
Chain price index		4.5	15.7	11.7	5.2	5.5	6.8	9.2	10.1
Fixed-weighted price index	8.5	4.6	16.0	11.9	5.2	6.7	6.8	9.4	10.6
Business current account, private—air:									
Current dollars	22.3	19.2	42.6	20.0	17.8	17.1	15.2	28.8	28.6
1972 dollars	7.4	7.3	3.4	9.1	11.8	6.7	7.1	4.9	4.2
Implicit price deflator	13.8	10.1	25.3	10.0	6.2	9.8	7.5	22.0	23.4
Chain price index		10.2	27.2	10.4	6.6	9.4	7.5	21.5	22.8
Fixed-weighted price index	13.9	10.2	27.2	10.5	6.5	9.0	8.0	19.4	20.0
Pollution abatement and control—water:									
Current dollars	13.6	15.6	16.3	16.6	14.4	8.5	16.8	9.9	3.3
1972 dollars	3.2	8.4	2.1	6.6	6.0	4	7.4	-1.1	-8.6
Implicit price deflator	9.1	6.7	12.8	9.4	7.2	8.1	8.8	11.1	10.0
Chain price index		6.7	13.0	9.6	7.0	7.5	8.8	10.8	10.6
Fixed-weighted price index	9.1	6.7	12.9	9.7	7.2	7.6	9.1	10.8	10.6
Business capital—water:									
Current dollars	9.0	16.0	1.6	13.2	18.6	9.4	7.4	6.8	-2.7
1972 dollars	0	0.5	-10.4	2.8	9.1	1.8	-1.0	-4.1	-13.4
Implicit price deflator	8.0	6.0	12.7	10.1	6.3	7.4	8.3	11.0	9.8
Chain price index		6.9	12.7	10.6	6.8	7.1	8.1	10.9	10.5
Fixed-weighted price index	9.0	6.0	12.8	10.0	7.5	7.4	8.1	11.3	10.8
Business current account, private—water:									
Current dollars	18.1	17.4	21.0	19.1	20.8	19.1	13.9	16.0	11.3
1972 dollars	8.6	10.3	7	8.6	11.9	8.2	5.9	3.1	-3.8
Implicit price deflator	10.6	6.4	20.1	15.1	8.0	9.1	7.5	10.2	15.7
Chain price index		6.3	20.2	15.2	7.0	8.8	7.4	10.1	16.1
Fixed-weighted price index	10.6	6.3	20.0	15.1	7.6	8.9	7.4	10.0	15.7
Pollution abatement and control—solid waste:									
Current dollars	12.0	8.2	16.8	8.4	11.5	10.2	19.3	15.9	13.2
1972 dollars	3.8	8	4.3	0	6.3	4.2	6.8	3.7	8
Implicit price deflator	7.8	7.3	11.9	7.6	6.0	5.8	6.1	11.8	12.3
Chain price index		7.3	12.0	7.5	4.9	6.8	6.2	11.6	12.8
Fixed-weighted price index	7.5	7.3	12.0	7.4	4.0	5.9	6.2	11.8	12.4

* Revised. * Preliminary.

1. Compounded annually; not calculated for chain because it is defined for adjacent years only.

Table 4.—Federal Grants-in-Aid to State and Local Governments for

	Line	1972					1973					1974 *					1975 *				
		Total	Air	Water	Solid waste	Other and unallocated	Total	Air	Water	Solid waste	Other and unallocated	Total	Air	Water	Solid waste	Other and unallocated	Total	Air	Water	Solid waste	Other and unallocated
Pollution abatement and control.....	1	923	54	821	15	31	1,067	49	975	12	18	2,342	52	2,172	8	10	2,679	55	2,768	11	16
Pollution abatement.....	2	768	(*)	766	2	(*)	916	(*)	912	3	(*)	2,112	(*)	2,110	1	(*)	2,751	1	2,718	3	(*)
Regulation and monitoring.....	3	66	39	21	3	2	76	48	28	2	2	81	45	44	3	1*	102	47	52	3	(*)
Research and development.....	4	99	17	44	10	28	65	0	33	9	18	39	7	18	6	9	47	8	19	5	14
		Millions of																			
Pollution abatement and control.....	5	923	55	821	15	31	963	46	906	12	18	1,968	45	1,848	7	9	2,394	44	2,249	9	12
Pollution abatement.....	6	768	(*)	765	3	(*)	851	(*)	848	2	(*)	1,794	(*)	1,793	1	(*)	2,185	(*)	2,154	2	(*)
Regulation and monitoring.....	7	66	39	21	3	2	71	49	28	2	2	78	39	37	2	(*)	79	37	40	3	(*)
Research and development.....	8	99	17	44	10	28	61	0	31	0	17	34	6	16	4	5	38	6	16	5	11

* Revised.

* Preliminary.

* Less than \$500,000.

1. Constant-dollar estimates are derived using measures of price change of goods and services purchased by State and local governments for pollution abatement and control.

Table 5.—Revisions of Constant-Dollar Spending for Pollution Abatement and Control, 1972-79

(Millions of constant (1972) dollars)

Year	Total pollution abatement and control		
	Previously published	Revisions	Revised
1972	18,226	214	18,440
1973	20,630	73	20,703
1974	21,113	184	21,297
1975	22,941	67	23,008
1976	24,187	136	24,323
1977	24,963	297	25,260
1978	25,771	837	26,608
1979	26,112	325	26,437

declining rate was due to the smaller increases in the average expenditures per vehicle for emission abatement devices in the later period, except in 1980. Spending by consumers for non-durables grew at an average annual rate of 10 percent during 1972-75 and fell at an average rate of 6 percent during 1975-80. The fall was due to decreases in engine maintenance costs and increases in the efficiency of fuel use following the introduction of catalytic emission abatement devices in 1974.

Business spending on capital account grew at an annual rate of 7 percent during 1972-75 and at a rate of less than 1 percent during 1975-80. The largest component of business capital spending, industrial plant and equipment for air and water PA, actually decreased at an average annual rate of 3 percent in the later period, compared with average increases of

Table 6.—Constant-Dollar Spending for Abatement of Air Pollutant Emissions from Mobile and Stationary Sources¹

(Millions of constant (1972) dollars)

	1972*	1973*	1974*	1975*	1976*	1977*	1978*	1979*	1980*
Total	6,238	7,120	7,728	8,544	9,912	9,164	9,313	9,668	10,411
Mobile sources*	2,196	2,989	3,315	4,119	4,879	4,930	5,083	5,127	5,741
Devices	701	1,068	1,070	1,853	2,276	2,583	2,716	2,853	3,513
Cars	838	843	865	1,578	1,942	2,288	2,382	2,499	3,105
Catalytic	0	0	200	917	1,096	1,187	1,204	1,266	1,436
Noncatalytic	838	843	665	660	846	1,099	1,178	1,233	1,669
Trucks	113	166	245	276	335	347	364	365	408
Operation of devices	1,495	1,361	2,245	2,355	2,340	2,297	2,318	2,274	2,227
Cars	1,348	1,688	1,836	1,784	1,846	1,475	1,404	1,228	1,049
Trucks	147	209	359	481	636	762	913	1,046	1,178
Stationary sources	4,042	4,261	4,113	4,425	4,933	4,234	4,230	4,541	4,670
Facilities	2,535	2,864	2,827	3,027	3,749	2,876	2,481	2,548	2,726
Industrial	2,535	2,766	2,745	2,959	2,936	2,457	2,378	2,496	2,541
Manufacturing	1,342	1,458	1,696	1,649	1,254	1,185	1,166	1,377	1,086
Nonmanufacturing	1,421	1,332	1,180	1,310	1,682	1,272	1,212	1,319	1,455
Other ²	83	75	32	71	103	120	115	144	185
Operation of facilities	1,495	1,397	1,286	1,398	1,592	1,708	1,789	1,890	1,944
Industrial	1,329	1,325	1,216	1,217	1,495	1,621	1,713	1,806	1,890
Manufacturing	772	745	695	776	899	942	990	1,045	1,007
Nonmanufacturing	557	582	523	590	615	679	783	796	884
Other ³	19	69	70	22	26	87	77	80	94

* Revised.

* Preliminary.

1. The Clean Air Act classifies sources of pollutants as either mobile, such as passenger cars, or stationary, such as factories.

2. Excludes spending to reduce emissions from mobile sources other than cars and trucks; such spending was insignificant during 1972-80.

3. Consists of spending for fixed capital of government enterprises such as the Tennessee Valley Authority.

4. Consists of spending to operate government enterprises and all spending by government; separate data on spending to acquire and operate government pollution abatement facilities are not available.

11 percent for air PA and 10 percent for water PA during 1972-75.

Government spending for PA showed almost no change between 1975 and 1980 after increasing at an average annual rate of 8 percent during 1972-75. Spending for regulation and monitoring (R&M), all by government, increased at an average annual rate of 12 percent during 1972-75 and 7 percent during 1975-80—following the trend for total PAC spending. Research and development (R&D) spending by government and industry ran counter to the general

trend. It grew at an average annual rate of 1 percent during 1972-75 and 3 percent during 1975-80.

Three additional exceptions to the general trend were business spending for solid waste capital, capital spending for residential systems, and business spending on current account. Business spending for solid waste capital was almost unchanged during 1972-75 and increased at an average annual rate of 5 percent during 1975-80. The increase in the later period was probably due to increasing concern over hazardous wastes and the

Pollution Abatement and Control in Current and Constant Dollars¹

1976 *					1977 *					1978 *					1979 *					1980 *					Line
Total	Air	Water	Solid waste	Other and unallocated	Total	Air	Water	Solid waste	Other and unallocated	Total	Air	Water	Solid waste	Other and unallocated	Total	Air	Water	Solid waste	Other and unallocated	Total	Air	Water	Solid waste	Other and unallocated	
Current dollars																									
1,386	58	3,298	13	22	4,081	62	3,956	16	28	4,180	71	4,812	25	42	5,205	81	5,884	44	76	5,303	91	5,075	51	87	1
2,139	1	3,184	4	(*)	3,815	1	3,699	6	(*)	3,879	(*)	3,871	7	1	4,905	(*)	4,892	7	6	4,971	(*)	4,954	9	8	2
153	48	96	3	5	194	55	129	6	5	214	63	124	10	12	281	73	93	33	32	254	84	34	38	38	3
45	6	18	4	17	51	7	18	4	23	57	8	17	4	29	68	8	19	4	36	79	7	21	4	41	4
Constant (1972) dollars																									
2,546	42	2,481	8	18	2,847	42	2,775	19	20	2,844	45	2,856	16	29	2,976	48	2,964	25	46	2,917	50	2,689	27	48	5
2,401	1	2,398	3	(*)	2,679	1	2,675	4	(*)	2,471	(*)	2,486	4	(*)	2,796	(*)	2,788	4	3	2,631	(*)	2,623	5	4	6
110	35	89	2	3	132	27	87	4	3	136	60	75	9	8	127	44	65	19	19	138	48	51	21	21	7
35	5	14	3	13	37	5	18	3	17	38	5	11	3	19	43	5	12	2	24	46	4	18	2	24	8

passage of the Resource Conservation and Recovery Act of 1976. Spending for residential systems decreased at an average annual rate of 14 percent during 1972-75 and increased at a rate of 1 percent during 1975-80. This is a volatile component of PAC spending and fluctuates with residential construction activity. Business spending on current account grew at a rate of 5 percent during 1972-75 and 6 percent during 1975-80. Current-account spending increases reflect the operation of a growing capital stock.

The composition of PAC spending by type (e.g., air PAC), function (e.g., R&M), and sector shifted during the 1972-80 period. Air PAC increased as a percent of total PAC (from 34 percent in 1972, to 38 percent in 1975, and to 40 percent in 1980), and water PAC decreased (from 45 percent, to 43 percent, and to 39 percent). Solid waste PAC fluctuated moderately (18 percent, 15 percent, and 16 percent). By function, the composition of PAC spending has not changed much: PA spending continues to account for the largest portion of PAC (about 94 percent) and composition shifts between R&M and R&D were small. By sector, the majority of PAC expenditures continue to be made by business (64 percent in 1972, 60 percent in 1975, and 62½ percent in 1980). Government spending first increased (from 28 percent to 29 percent in 1975) and then decreased (to 25½ percent), largely reflecting variations in spending for public sewer systems. Personal consumption spending increased (from 8 percent, to 11 percent, to 12 percent).

Table 7.—Constant-Dollar Spending for Abatement of Water Pollutant Emissions From Point Sources¹

(Millions of constant (1972) dollars)

	1972 [*]	1973 [*]	1974 [*]	1975 [*]	1976 [*]	1977 [*]	1978 [*]	1979 [*]	1980 [*]
Total.....	1,551	8,214	8,635	9,295	9,916	9,923	10,722	10,581	9,861
Facilities.....	6,430	5,881	5,676	6,711	7,096	6,846	7,421	7,130	6,489
Industrial.....	1,411	1,885	1,695	1,945	2,138	2,050	1,928	1,810	1,711
Manufacturing.....	680	858	852	889	1,173	1,164	901	726	684
Nonmanufacturing.....	730	746	744	947	904	886	1,027	1,084	1,028
Public sewer systems, private connectors to them, and other.....	4,825	4,246	4,482	4,765	4,900	4,795	5,493	5,321	4,778
Public sewer systems and private connectors.....	3,366	4,193	4,418	4,717	4,806	4,739	5,405	5,293	4,731
Other ²	32	54	84	40	54	56	84	58	47
Operation of facilities.....	2,115	2,384	2,457	2,580	2,818	3,071	3,381	3,451	3,373
Industrial.....	912	1,021	1,023	1,089	1,210	1,387	1,428	1,504	1,433
Manufacturing.....	591	656	646	671	760	848	892	933	885
Nonmanufacturing.....	321	365	376	392	450	464	534	571	548
Public sewer systems, private connectors to them, and other.....	1,203	1,363	1,435	1,524	1,600	1,740	1,975	1,947	1,940
Public sewer systems, and private connectors.....	1,124	1,284	1,284	1,394	1,413	1,542	1,663	1,745	1,733
Other ³	79	129	171	220	196	198	206	202	167

^{*} Revised.^{*} Preliminary.

1. The Federal Water Pollution Control Act defines point sources as facilities that discharge to a body of water through a pipe or ditch.

2. Consists of spending by owners of animal feedlots and spending for fixed capital of government enterprises such as the Tennessee Valley Authority.

3. Consists of spending by owners of animal feedlots, spending to operate government enterprises, and spending by government except highway erosion control; separate data on spending to acquire and operate government pollution abatement facilities are not available.

Table 8.—Constant-Dollar Spending by Business and Government for Solid Waste Collection and Disposal and Related Series

	Line	1972 [*]	1973 [*]	1974 [*]	1975 [*]	1976 [*]	1977 [*]	1978 [*]	1979 [*]	1980 [*]
Millions of constant (1972) dollars										
Solid waste collection and disposal by means acceptable to Federal, State, and local authorities.....	1	3,416	3,429	3,554	3,576	3,816	3,982	4,264	4,386	4,421
Solid waste management.....	2	4,680	4,687	4,854	4,897	5,206	5,419	5,770	5,978	6,039
Pollution abatement.....	3	887	994	1,182	1,260	1,438	1,519	1,887	2,170	2,333
Other ¹	4	3,792	3,693	3,403	3,637	3,709	3,795	3,873	3,886	3,704
Percent change from preceding year										
Solid waste collection and disposal by means acceptable to Federal, State, and local authorities.....	5		4	3.6	.6	6.7	4.4	6.8	3.4	.5
Solid waste management.....	6		.1	3.6	.9	6.3	4.0	6.6	3.6	1.1
Pollution abatement.....	7		12.1	10.9	6.4	14.1	12.5	17.2	14.4	7.5
Other ¹	8		-2.6	0	-1.5	3.5	.7	2.1	-1.7	-2.0

^{*} Revised.^{*} Preliminary.

1. Consists of spending for the avoidance of the shewing of production or consumption activity due to the accumulation of solid waste and for other purposes except pollution abatement.